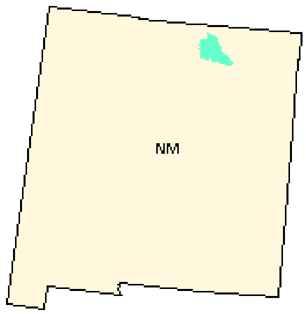
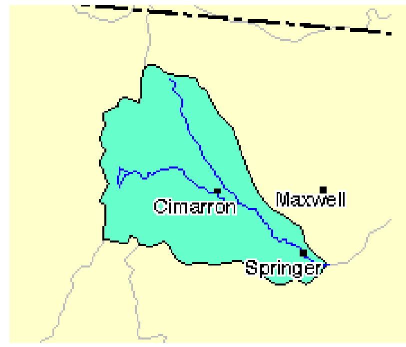
TOTAL MAXIMUM DAILY LOAD FOR METALS (CHRONIC ALUMINUM) IN PONIL CREEK





Summary Table

New Mexico Standards Segment	Canadian River, 20.6.4.309 (formerly 2306)
Waterbody Identifier	•Ponil Creek from the mouth on the Cimarron River to the confluence of North Ponil and South Ponil Creeks, 15.8 mi.
Parameter of Concern	Metals (chronic aluminum)
Uses Affected	Ponil Creek – domestic water supply, irrigation, high quality coldwater fishery, livestock watering, wildlife habitat, municipal and industrial water supply, and secondary contact.
Geographic Location	Canadian River Basin (Cimarron)
Scope/size of Watershed	1032 mi^2 (entire Cimarron) TMDL reaches: Ponil 333 mi^2
Land Type	Ecoregions: Southern Rockies (210, 211) Southwestern Tablelands (260, 261)
Land Use/Cover	Forest (51%), Rangeland (38%), Agriculture (9%), Urban (1.4%), Water (0.6%)
Identified Sources	Middle Ponil and Ponil - Streambank Modification/Destabilization, Removal of Riparian Vegetation, Rangeland, Recreation, Road Maintenance, and Natural
Watershed Ownership	Private (89%), Forest Service (9%), State (2%)
Priority Ranking	4
Threatened and Endangered Species	None
TMDL for: Metals (chronic aluminum) Ponil Creek	WLA(0) + LA(27.6) + MOS(4.9) = **32.5 lbs/day**

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EXECUTIVE SUMMARY

Section 303(d) of the Federal Clean Water Act requires states to develop Total Maximum Daily Load (TMDL) management plans for water bodies determined to be water quality limited. A TMDL documents the amount of a pollutant a water body can assimilate without violating a state's water quality standards. It also allocates that load capacity to known point sources and nonpoint sources at a given flow. TMDLs are defined in 40 CFR Part 130 as the sum of the individual Waste Load Allocations (WLA) for point sources and Load Allocations (LA) for nonpoint sources, including a margin of safety (MOS), and natural background conditions.

The Cimarron River Basin is a sub-basin of the Canadian River Basin, located in northeastern New Mexico. Stations were located throughout the basin to evaluate the impact of tributary streams and to establish background conditions. As a result of this monitoring effort, several exceedances of New Mexico water quality standards for metals (chronic aluminum) were documented on Ponil Creek.

A general implementation plan for activities to be established in the watershed is included in this document. The Surface Water Quality Bureau's Watershed Protection Pollution Section will further develop the details of this plan. Implementation of recommendations in this document will be done with full participation of all interested and affected parties. During implementation, additional water quality data will be collected. As a result targets will be re-examined and potentially revised; this document is considered to be an evolving management plan. In the event that new data indicate that the targets used in this analysis are not appropriate or if new standards are adopted, the load capacity will be adjusted accordingly. When water quality standards have been achieved, the reach will be removed from the TMDL list.

List of Abbreviations

BMP	**Best Management Practice**
BLM	**United States Department of Interior Bureau of Land Management**
CFS	**Cubic Feet per Second**
CWA	**Clean Water Act**
CWAP	**Clean Water Action Plan**
CWF	**Coldwater Fishery**
EPA	**United States Environmental Protection Agency**
FS	**United States Department of Agriculture Forest Service**
HQCWF	**High Quality Coldwater Fishery**
LA	**Load Allocation**
MGD	**Million Gallons per Day**
mg/L	**Milligrams per Liter**
MOS	**Margin of Safety**
MOU	**Memorandum of Understanding**
NMAC	**New Mexico Administrative Code**
NMED	**New Mexico Environment Department**
NMSHD	**New Mexico State Highway and Transportation Department**
NPDES	**National Pollutant Discharge Elimination System**
NPS	**Nonpoint Source**
SWQB	**Surface Water Quality Bureau**
TMDL	**Total Maximum Daily Load**
USGS	**United States Geological Survey**
UWA	**Unified Watershed Assessment**
WLA	**Waste Load Allocation**
WQLS	**Water Quality Limited Segment**
WQCC	**New Mexico Water Quality Control Commission**
WQS	**Water Quality Standards**

Background Information

The Cimarron River Basin is a sub-basin of the Canadian River Basin, located in northeastern New Mexico. This 1032 $mi.^2$ watershed is characterized by both forest and rangeland (Figure 1) on mostly private land. In the areas around Ponil Creek, the watershed is dominated by rangeland and agriculture on entirely private lands. Ponil Creek (from the mouth on the Cimarron River to the confluence of North Ponil and South Ponil Creeks, 15.8 miles) has a sub-watershed size of 333 mi^2 and flows east of the town of Cimarron.

Surface water quality monitoring stations were used to characterize the water quality of the stream reaches (see Figure 2). Stations were located to evaluate the impact of tributary streams and to establish background conditions. As a result of monitoring efforts, several exceedances of New Mexico water quality standards for metals (chronic aluminum) were documented on Ponil Creek. Ponil Creek was also found to be impaired due to temperature and turbidity. TMDLs for these pollutants will be addressed in other TMDL documents.

Endpoint Identification

Target Loading Capacity

Overall, the target values for this metals TMDLs will be determined based on 1) the presence of numeric criteria, 2) the degree of experience in applying the indicator and 3) the ability to easily monitor and produce quantifiable and reproducible results. For this TMDL document target values for metals (chronic aluminum) are based on numeric criteria.

Metals (chronic aluminum)

> According to New Mexico standards (20.6.4.12 NMAC) the State's standard leading to an assessment of use impairment is the numeric criteria stating that "dissolved aluminum shall not exceed 87 ug/L" and "acute dissolved aluminum shall not exceed 750 ug/L" for the appropriate designated use of a fishery.

Although there are no adverse affects to biota at acute levels of 750 ug/L or chronic levels of 87 ug/L, high chronic levels of dissolved aluminum are toxic to fish, benthic invertebrates, and some single-celled plants. Aluminum concentrations from 100 to 300 ug/L increases mortality, retard growth, gonadal development and egg production of fish (http://h2osparc.wq.ncsu.edu).

Exceedances of the numeric criteria for both chronic and acute aluminum were seen during the spring 1998 water quality sampling. These exceedances resulted in the listing of this reach for metals (chronic aluminum) and the drafting of this TMDL document. To be conservative, this TMDL was drafted for chronic aluminum, which should also protect against any acute exceedances.

Figure 1

Cimarron Watershed - #11080002
Land Use/Cover

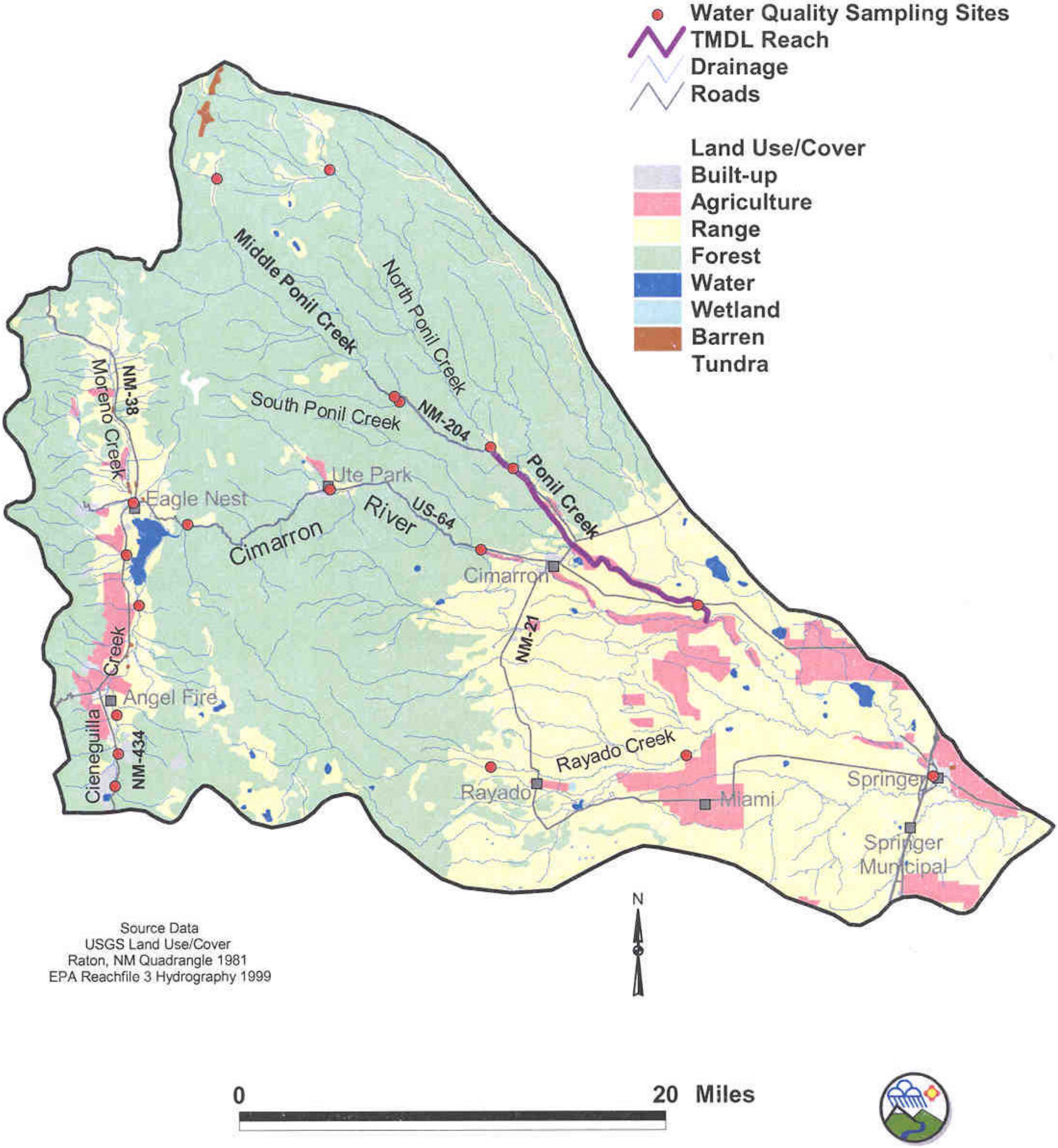
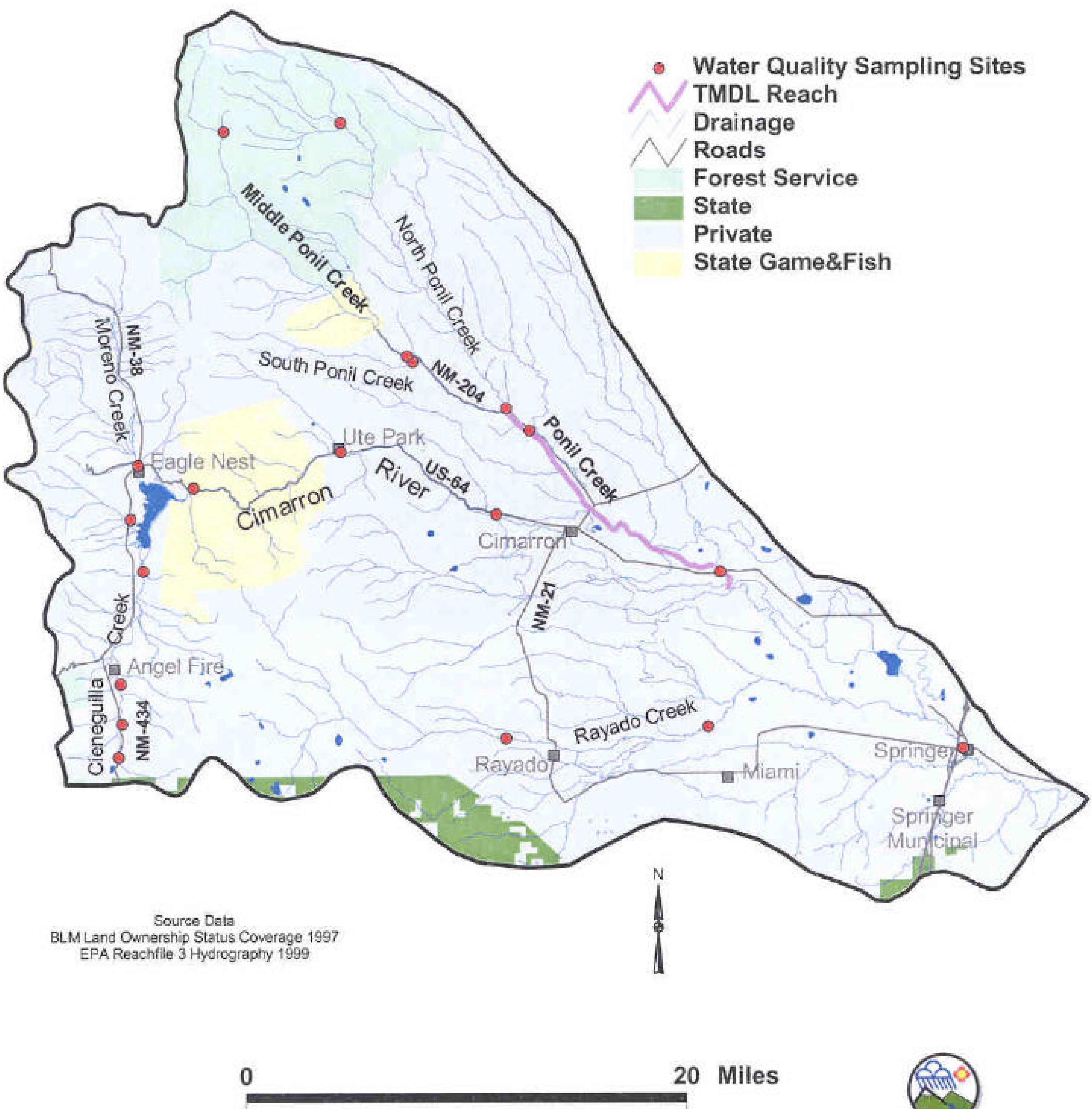


Figure 2

Cimarron Watershed - #11080002
Land Ownership



Flow

Metals, concentrations in a stream vary as a function of flow. As flow increases the concentration of metals can increase. This TMDL is calculated for Ponil Creek at a specific flow. When available, US Geological Survey (USGS) gages are used to estimate flow. Where gages are absent or poorly located along a reach, either actual flows (measured as water quality samples are taken) are used as target flows or geomorphological cross sectional information is taken to model the flows. It is important to remember that the TMDL is a planning tool to be used to achieve water quality standards. Since flows vary throughout the year in these systems the target load will vary based on the changing flow. Management of the load should set a goal at water quality standards attainment, not meeting the calculated target load.

Calculations

A target load for metals (chronic aluminum) is calculated based on a flow, the current water quality standards, and a unit-less conversion factor, 8.34 that is a used to convert mg/L units to lbs/day (see Appendix A for Conversion Factor Derivation). The target loads (TMDLs) predicted to attain standards were calculated using Equation 1 and are shown in Table 1.

Equation 1. *critical flow (mgd) x standard (mg/L) x 8.34 (conversion factor) = target loading capacity*

Table 1: Calculation of Target Loads

Location	Flow (mgd)	Standard Metals Chronic Aluminum (mg/L)	Conversion Factor	Target Load Capacity (lbs/day)
Ponil	44.8‡	.087	8.34	32.5

‡Flow is the greatest monthly mean flow From USGS station #07207500 from 1916-1993 (USGS 1994).

The measured loads were calculated using Equation 1. The flows used were either taken directly from a USGS gage or from field measurements. The geometric mean of the data that exceeded the standards from the data collected at each site for dissolved aluminum and was substituted for the standard in Equation 1. The same conversion factor of 8.34 was used. Results are presented in Table 2.

Table 2: Calculation of Measured Loads

Location	Flow (mgd)	Field Measurements (mg/L)	Conversion Factor	Measured Load (lbs/day)
Ponil	44.8‡	.201*	8.34	75.1

‡Flow is the greatest monthly mean flow From USGS station #07207500 from 1916-1993 (USGS 1994).
*These are the geometric means of metals (dissolved aluminum) values that exceeded the numeric standard.

Background loads were not possible to calculate in this watershed. A reference reach, having similar stream channel morphology and flow, was not found. It is assumed that a portion of the load allocation is made up of natural background loads. In future water quality surveys, finding a suitable reference reach will be a priority.

Waste Load Allocations and Load Allocations

•*Waste Load Allocation*

There are no point source contributions associated with this TMDL. The waste load allocation is zero.

•*Load Allocation*

In order to calculate the load allocation (LA) the waste load allocation (WLA), background, and margin of safety (MOS) were subtracted from the target capacity (TMDL) following Equation 2.

Equation 2. $WLA + LA + MOS = TMDL$

Results are presented in Table 3 (Calculation of TMDLs for Metals).

Table 3: Calculation of TMDL for Metals (Chronic Aluminum)

Location	WLA (lbs/day)	LA (lbs/day)	MOS (15%) (lbs/day)	TMDL (lbs/day)
Ponil	0	27.6	4.9	32.5

The load reductions that would be necessary to meet the target loads were calculated to be the difference between the target load (Table 1) and the measured load (Table 2), and are shown in Table 4 (Calculation of Load Reductions). For example, for Ponil Creek, achieving the target load of 32.5 lbs/day would require a load reduction of 42.6 lbs/day.

Table 4: Calculation of Load Reductions (in lbs/day)

Location	Target Load	Measured Load	Load Reduction
Ponil	32.5	75.1	42.6

Identification and Description of pollutant source(s)

Table 5: Pollutant Source Summary

Pollutant Sources	**Magnitude** (WLA + LA + MOS)	**Location**	**Potential Sources** (% from each)
Point: None	0	--------	0
Nonpoint: •Metals (chronic aluminum)	 32.5	 Ponil	100% Streambank Modification/Destabilization, Removal of Riparian Vegetation, Rangeland, Recreation, Road Maintenance, and Natural

Linkage of Water Quality and Pollutant Sources

Where available data are incomplete or where the level of uncertainty in the characterization of sources is large, the recommended approach to TMDLs requires the development of allocations based on estimates utilizing the best available information.

SWQB fieldwork includes an assessment of the potential sources of impairment (SWQB/NMED 1999a). The Pollutant Source(s) Documentation Protocol, shown as Appendix C, provides an approach for a visual analysis of a pollutant source along an impaired reach. Although this procedure is subjective, SWQB feels that it provides the best available information for the identification of potential sources of impairment in this watershed. Table 5 (Pollutant Source Summary) identifies and quantifies potential sources of nonpoint source impairments along each reach as determined by field reconnaissance and assessment. A further explanation of the sources follows.

Ponil Creek

Ponil Creek is formed with the confluence of North Ponil Creek and South Ponil Creek. North Ponil Creek is impaired due to turbidity. It is possible that this creek is impaired due in part to upstream influences, since metals are often associated with sediment loads in streams. The primary sources of impairment along this reach are streambank destabilization, removal of riparian vegetation, and road maintenance. This reach has been historically impacted by irrigated agriculture, rangeland, and runoff from roads. The land surrounding this creek is privately owned.

The natural sources of aluminum in Ponil Creek are the predominant minerals composing the earth's crust. Aluminum in these minerals is mobilized naturally by percolating water and by surface runoff. The mobilization may be accelerated by surface disturbing activities that constitute the remaining sources listed in Table 5. The slightly acidic nature of rain and snow (and the increased solubility of aluminum at lower pH), the residence time of frozen or melting snow on the weathered portion of aluminum bearing minerals, and the acidic pulse that can occur with the first spring snowmelt are frequently observed to result in the highest concentrations of dissolved metals from a given area.

Results from biological sampling at selected sampling sites are used to support the listing of this reach for metals (chronic aluminum). Rayado Creek near the USGS gage (station 10) was used as a reference station for Ponil Creek at the USGS gage (station 18). The EPT (Ephemeroptera, Plecoptera, Tricoptera) Index at both sites was 6 and the habitat condition at the Ponil Creek station was 95 % of the reference site. The habitat assessment scored both streams as being good, with the Ponil Creek site rated comparable to the Rayado Creek reference site. The biological comparison between the two sites however showed differences in the benthic communities. Although there was a large shift from shredders to filter-collector feeders, indicating the possibility of impairment, a comparison of the other metrics at the two sites showed only small differences, which, by themselves, were not of concern. When these metrics were totaled however, the small individual differences in the metric indices were enough to rate the Ponil Creek site as being somewhat impaired when compared to the Rayado Creek reference site. In this analysis Ponil Creek at station 18 was still rated as fully supporting with impacts observed.

Margin of Safety (MOS)

TMDLs should reflect a margin of safety based on the uncertainty or variability in the data, the point and nonpoint source load estimates, and the modeling analysis. For this TMDL, there will be no margin of safety for point sources, since there are none. However, for the nonpoint sources the margin of safety is estimated to be an addition of **15%** for metals (SWQB/NMED 1999b) to the TMDL, excluding the background. This margin of safety incorporates several factors:

•*Errors in calculating NPS loads*

A level of uncertainty exists in sampling nonpoint sources of pollution. Techniques used for measuring metals concentrations in stream water are 15% accurate. Accordingly, a conservative margin of safety for metals increases the TMDL by 15%.

•*Errors in calculating flow*

Flow estimates were based on USGS gages. Conservative values were used to calculate loads and do not warrant additional MOS.

Consideration of seasonal variation

Data used in the calculation of this TMDL were collected during spring, summer, and fall in order to ensure coverage of any potential seasonal variation in the system. Critical condition is set to the highest flows for metals. Data where exceedances were seen (primarily during high spring flows) were used in the calculation of the measured loads.

Future Growth

Estimations of future growth are not anticipated to lead to a significant increase for metals (chronic aluminum) that cannot be controlled with best management practice implementation in this watershed. Ponil Creek is on private land.

Monitoring Plan

Pursuant to Section 106(e)(1) of the Federal Clean Water Act, the SWQB has established appropriate monitoring methods, systems and procedures in order to compile and analyze data on the quality of the surface waters of New Mexico. In accordance with the New Mexico Water Quality Act, the SWQB has developed and implemented a comprehensive water quality monitoring strategy for the surface waters of the State. The monitoring strategy establishes the methods of identifying and prioritizing water quality data needs, specifies procedures for acquiring and managing water quality data, and describes how these data are used to progress toward three basic monitoring objectives: to develop water quality-based controls, to evaluate the effectiveness of such controls and to conduct water quality assessments.

The SWQB utilizes a rotating basin system approach to water quality monitoring. In this system, a select number of watersheds are intensively monitored each year with an established return frequency of every five years.

The SWQB maintains current quality assurance and quality control plans to cover all monitoring activities. This document, "Quality Assurance Project Plan for Water Quality Management Programs" (QAPP) is updated annually (SWQB/NMED 1999c). Current priorities for monitoring in the SWQB are driven by the 303(d) list of streams requiring TMDLs. Short-term efforts will be directed toward those waters which are on the EPA TMDL consent decree (Forest Guardians and Southwest Environmental Center v. Carol Browner, Administrator, US EPA, Civil Action 96-0826 LH/LFG, 1997) list and which are due within the first two years of the monitoring schedule. Once assessment monitoring is completed those reaches showing impacts and requiring a TMDL will be targeted for more intensive monitoring. The methods of data acquisition include fixed-station monitoring, intensive surveys of priority water bodies, including biological assessments, and compliance monitoring of industrial, federal and municipal dischargers, and are specified in the SWQB Assessment Protocol (SWQB/NMED 1998).

Long term monitoring for assessments will be accomplished through the establishment of sampling sites that are representative of the waterbody and which can be revisited every five years. This gives an unbiased assessment of the waterbody and establishes a long term monitoring record for simple trend analyses. This information will provide time relevant information for use in 305(b) assessments and to support the need for developing TMDLs.

The approach provides:

- o a systematic, detailed review of water quality data, allowing for a more efficient use of valuable monitoring resources.
- o information at a scale where implementation of corrective activities is feasible.
- o an established order of rotation and predictable sampling in each basin which allows for enhanced coordinated efforts with other programs.
- o program efficiency and improvements in the basis for management decisions.

It should be noted that a basin will not be ignored during its four year sampling hiatus. The rotating basin program will be supplemented with other data collection efforts. Data will be analyzed, field studies will be conducted, to further characterize identified problems, and TMDLs will be developed and implemented. Both long term and field studies can contribute to the 305(b) report and 303(d) listing processes.

The following schedule is a draft for the sampling seasons through 2002 and will be followed in a consistent manner to support the New Mexico Unified Watershed Assessment (UWA) and the Nonpoint Source Management Program. This sampling regime allows characterization of seasonal variation and through sampling in spring, summer, and fall for each of the watersheds.

1998 - Jemez, Chama (above El Vado), Cimarron (above Springer), Santa Fe, San Francisco
1999 - Chama (below El Vado), middle Rio Grande, Gila, Red River
2000 - Mimbres, Dry Cimarron, upper Rio Grande (part1)
2001 - Upper Rio Grande (part 2), upper Pecos (headwaters to Ft. Sumner), lower Pecos (Roswell south), Closed Basins, Zuni
2002 - Canadian Basin, lower Rio Grande, San Juan, Rio Puerco

Implementation Plan

Management Measures

Management measures are "economically achievable measures for the control of the addition of pollutants from existing and new categories and classes of nonpoint sources of pollution, which reflect the greatest degree of pollutant reduction achievable through the application of the best available nonpoint pollution control practices, technologies, processes, siting criteria, operating methods, or other alternatives" (USEPA, 1993). A combination of best management practices (BMPs) and public education will be used to implement this TMDL.

Introduction

The uptake and transport of metals in surface waters can pose a considerable nonpoint source pollution problem. Metals such as aluminum, lead, copper, iron, zinc and others can occur naturally in watersheds in amounts ranging from trace to highly mineralized deposits. Some metals are essential to life at low concentrations but are toxic at higher concentrations. Metals such as cadmium, lead, mercury, nickel, and beryllium represent known hazards to human health. The metals are continually released into the aquatic environment through natural processes, including weathering of rocks, landscape erosion, geothermal or volcanic activity. The metals may be introduced into a waterway via headcuts, gullies or roads. Depending on the characteristics of the metal, it can be dissolved in water, deposited in the sediments or both. Metals become dissolved metals in water as a function of the pH of a water system. In urban settings, stormwater runoff can increase the mobilization of many metals into streams.

Aluminum is naturally occurring in soils, clay, and rock. Substantial amounts are found in silicate igneous rock minerals and micas (USGS 1986). Because of its amphoteric nature, Al is more soluble in acidic and basic solutions than in circumneutral solutions. A decrease in pH due to the slight acidity of rain and snowmelt, coupled with high runoff rates due to riparian disturbance would result in higher chronic or acute levels of dissolved aluminum.

Examples of sources that can cause metals contamination:

- Activities such as resource extraction, recreation, some agricultural activities and erosion can contribute to nonpoint source pollution of surface water by metals.
- Stormwater runoff in industrial areas may have elevated metals in both sediments and the water column.

Actions to be Taken

On this watershed the primary focus will be on the control of aluminum listed in the CWA §303 (d) report as exceeding the State of New Mexico Standards for Interstate and Intrastate Surface Waters.

During the TMDL process in this watershed, point sources have been reviewed and will be addressed through the permit process. The nonpoint source contributions will need to address aluminum exceedances through BMP implementation.

BMPs can be implemented to address and remediate metal contamination. They include, but are not limited to:

1. Improving the pH in a stream. Neutral to alkaline pH waters will generally not pose a metal exceedance problem. An acidic pH will dissolve available metals. In such a case, a remedy for metals contamination could be an adjustment of the pH of runoff before it enters the water body. An approach may be the construction of an anoxic alkaline drain to raise the pH and precipitate the contained metals. An anoxic alkaline drain is constructed by placing a high pH material in a trench between runoff and the stream to be used as a buffer (Red River Groundwater Investigation- NMED-SWQB-Nonpoint Source Pollution Section, 1996, D. Slifer).
2. Wetlands are used to filter runoff water and sediment from source areas in the watershed. Metals may be bound up in the root systems of wetlands vegetation, preventing them from entering a waterway. (The Use of Wetlands for Improving Water Quality to Meet Established Standards, 1992, Filas and Wildeman.)
3. A method for reducing metals used in controlled situations includes the use of sulfate and sulfate reducing bacteria. The sulfate, (if not already present), and the sulfate reducing bacteria are applied into the water column. This provides a mechanism for some metals to precipitate out of solution. (A Treatment of Acid Mine Water Using Sulfate-Reducing Bacteria, 1979, Wakao, Saurai, and Shiota).
4. Stormwater and construction BMPs can be used to divert flows off metal-producing areas directing them away from streams into areas where the flows may infiltrate, evaporate, or accumulate in sediment retention basins. (Conservation Design for Stormwater Management: A Design Approach to Reduce Stormwater Impacts from Land Development and Achieve Multiple Objectives Related to Land Use, 1997, Delaware Department of Natural Resources and Environmental Control, Sediment and Stormwater Program & the Environment Management Center, Brandywine Conservancy.

Additional sources of information for BMPs to address metals are listed below. Some of these documents are available for viewing at the New Mexico Environment Department, Surface Water Quality Bureau, Harold Runnels Building, Suite # N2100, 1190 St. Francis Drive, Santa Fe New Mexico.

Mining

Internet websites:

- http://www.epa.gov/region2/epd/98139.htm
- http:www.epa.gov/OSWRCRA/hazwast/ldr/mining/docs/hhed1196.pdf

- Caruso, B.S., and R. Ward, 1998, Assessment of Nonpoint Source Pollution from Inactive Mines Using a Watershed Based Approach, Environmental Management, vol.22, No.2, Springer-Verlag New York Inc. pp.225-243.

- Cohen, R.R.H., and S. W. Staub, 1992, Technical Manual for the Design and Operation of a Passive Mine Drainage Treatment System. U.S. Bureau of Land Management and U.S. Bureau of Reclamation, Denver, CO.

- Coleman, M.W., 1996, Anoxic Alkaline Treatment of Acidic, Metal-Loaded Seeps Entering the Red River, Taos Co., NM. Paper presented at New Mexico Governor's 1996 Conference on the Environment, Albuq.Convention Center, abstract in program. Published in New Mexico Environment Department-NonPoint Source newsletter "Clearing the Waters", v.3, No.1, summer, Santa Fe.

- Coleman, M.W., 1999, Geology-Based Analysis of Elevated Aluminum in the Jemez River, North-Central New Mexico. Unpublished Report to USEPA Region 6, New Mexico Total Maximum Daily Load (TMDL) Team, New Mexico Environment Department Surface Water Quality Bureau, Santa Fe, 2p.

- Coleman, M.W., 2000, Rio Puerco Watershed Mining Impacts. New Mexico Environment Department, Clean Water Act (CWA) Section 319(h) Grant Project Summary Report to USEPA Region 6 Dallas, New Mexico Environment Department Surface Water Quality Bureau Watershed Protection Section, Santa Fe.

- Eger, P., and K. Lapakko, 1988, Nickel and Copper Removal From Mine Drainage by a Natural Wetland. U.S. Bureau of Mines Circular 9183. pp.301-309.

- Filas, B., and T. Wildeman, 1992, The Use of Wetlands for Improving Water Quality to Meet Established Standards, Nevada Mining Association Annual Reclamation Conference, Sparks, Nevada.

- Girts, M.A., and R.L.P. Kleinmann, 1986, Constructed Wetlands for Treatment of Mine Water. American Institute of Mining Engineers Fall Meeting. St. Louis, Missouri.

- Holm, J.D., and T. Elmore, 1986, Passive Mine Drainage Treatment Using Artificial and Natural Wetlands. Proceedings of the High Altitude Revegetation Workshop, No. 7. pp. 41-48.

- Kleinmann, R.L.P., 1989, Acid Mine Drainage: U.S. Bureau of Mines, Research and Developments, Controlling Methods for Both Coal and Metal Mines. Engineering Mining Journal 190:16i-n.

- Machemer, S.D., 1992, Measurements and Modeling of the Chemical Processes in a Constructed Wetland Built to Treat Acid Mine Drainage. Colorado School of Mines Thesis T-4074, Golden, CO.

- Metish, J.J. and others, 1998, Treating Acid Mine Drainage From Abandoned Mines in Remote Areas. USDA Forest Service Technology and Development Program, AMD Study 7E72G71, Missoula, MT, US Govt. Printing Office: 1998-789-283/15001.

- Royer, M.D., and L. Smith, 1995, Contaminants and Remedial Options at Selected Metal-Contaminated Sites: Battelle Memorial Institute-Columbus Division, under contract # 68-CO-0003-WA41 to Natl. Risk Management Lab-Office of Research and Development, USEPA. EPA/540/R-95/512.

- Slifer, D.W., 1996, Red River Groundwater Investigation- New Mexico Environment Department Surface Water Quality Bureau Nonpoint Source Pollution Section; CWA Section 319 (h) Grant Project Final Report to USEPA Region 6 - Dallas.

- US EPA, 1996, Seminar Publication Managing Environmental Problems at Inactive and Abandoned Metals Mine Sites, Office of Research and Development, EPA/625/R-95/007.

- Wakao, N., T. Takahashi, Y. Saurai, and H. Shiota. 1979. A Treatment of Acid Mine Water Using Sulfate-reducing Bacteria. Journal of Ferment. Technology 57(5):445-452.

Riparian and Streambank Stabilization

- Colorado Department of Natural Resources, Streambank Protection Alternatives, State Soil Conservation Board.

- Meyer, Mary Elizabeth, 1989, A Low Cost Brush Deflection System for Bank Stabilization and Revegetation.

- Missouri Department of Conservation, Restoring Stream Banks With Willows, (pamphlet).

- New Mexico State University, Revegetating Southwest Riparian Areas, College of Agriculture and Home Economics, Cooperative Extension Service, (pamphlet).

- State of Pennsylvania Department of Environmental Resources, 1986, A Streambank Stabilization And Management Guide for Pennsylvania Landowners, Division of Scenic Rivers.

- State of Tennessee, 1995, Riparian Restoration and Streamside Erosion Control Handbook, Nonpoint Source Water Pollution Management Program.

Stormwater/Urban

Internet website

- http://www.epa.gov/ordntrnt/ORD/WebPubs/nctuw/Pitt.pdf

- Brede, A.D., L.M. Cargill, D.P. Montgomery, and T.J. Samples, 1987, Roadside Development and Erosion Control. Oklahoma Department of Transportation, Report No. FHWA/OK 87 (5).

- Delaware Department of Natural Resources and Environmental Control, 1997, Conservation Design for Stormwater Management: A Design Approach to Reduce Stormwater Impacts from Land Development and Achieve Multiple Objectives Related to Land Use. Sediment and Stormwater Program & the Environment Management Center, Brandywine Conservancy.

- Taylor, Scott, and G. Fred Lee, 2000, Stormwater Runoff Water Quality Science/Engineering Newsletter, Urban Stormwater Runoff Water Quality Management Issues, Vol. 3, No. 2. May 19.

Miscellaneous

Internet website

- http://www.epa.gov/OWOW/NPS

- Constructed Wetlands Bibliography, www.nal.usda.gov/wqic/Constructed_Wetlands_all/index.html

- New Mexico Environment Department, 2000, A Guide to Successful Watershed Health, Surface Water Quality Bureau.

- Roley, William Jr., Watershed Management and Sediment Control for Ecological Restoration.

- Rosgen, D., 1996, Applied River Morphology; Chapter 8. Applications (Grazing, Fish Habitat).

- State of Tennessee Nonpoint Source Water Pollution Management Program, 1995, Riparian Restoration and Streamside Erosion Control Handbook.

- The Federal Interagency Stream Restoration Working Group, 1998, Stream Corridor Restoration. Principles, Processes, and Practices; Chapter 8 – Restoration Design; Chapter 9 – Restoration implementation, Monitoring, and Management.

- USDA Forest Service Southwestern Region, Soil and Water Conservation Practices Handbook
  Section 23, Recreation Management
  Section 25, Watershed Management
  Section 41, Access and Transportation Systems and Facilities.

- US EPA, 1993, Guidance Specifying Management Measures For Sources of Nonpoint Pollution in Coastal Waters. Office of Water, Coastal Zone Act Reauthorization Amendments of 1990. EPA840-B-92-002

- Interagency Baer Team, 2000, Cerro Grande Fire Burned Area Emergency Rehabilitation (BAER) Plan, Section F. Specifications.

- Unknown; Selecting BMPs and other Pollution Control Measures.

- Unknown; Environmental Management. Best Management Practices.
  Construction Sites
  Developed Areas
  Sand and Gravel Pits
  Farms, Golf Courses, and Lawns

Other BMP Activities in the Watershed

The following are activities in this watershed that have occurred, are occurring, or are in the planning stages to address turbidity sources or other nonpoint source issues in the Ponil watershed (which includes Ponil and Middle Ponil Creeks).

The Carson National Forest has been and continues to be involved in management activities on lands in the upper reaches of the Ponil watershed. Many of these management activities are undertaken to address issues with sediment, turbidity, and water temperature. The Valle Vidal Unit (Unit), which includes portions of the upper Ponil watershed, was donated to the federal government in 1982 by Penzoil Corporation. Prior to the acquisition of the Unit, the area was managed as a private ranch. Mining, grazing and logging were all historic uses made of the land. Currently, the Valle Vidal is managed with an emphasis focused on recreation, wildlife and fisheries and grazing.

Currently, 865 head of cattle are permitted on the Valle Vidal Unit. Grazing activities within the Middle Ponil Creek are limited to 4-6 days per year as the cattle are herded from the east side to the west side of the Unit. In addition, the Forest Service utilizes a 500 acre pasture located near Shuree Lodge for approximately 2 months each summer for administrative use for 3 to 5 horses.

When the Valle Vidal was acquired approximately 350 miles of roads were in place. These roads supported the historic uses in place prior to acquisition by the Forest Service. Since that time approximately 300 miles have been closed or obliterated. The remaining road system serves to allow for public access and for administrative use. Vehicular access throughout the Unit is restricted to the road system, and no parking, other than in designated areas or along the roads, is allowed. OHV use is also prohibited.

Recreational developments consist of Cimarron Campground and the Shuree Ponds, which consist of fishing ponds, a trail system and fishing pier, and picnic tables and rest rooms. Dispersed camping is allowed, but campers must remain a minimum of 100 yards from streams and creeks and 300 yards from any man made water development. This requirement, in effect, prohibits dispersed camping from all but the headwaters of the Middle Ponil.

The Carson National Forest is also involved in stream restoration activities in the upper Ponil Watershed. The Ring Place Drainage is an ephemeral stream that was incised and eroded with a moving headcut. A volunteer effort was organized to address the problems on this system, utilizing methods that are affordable and easy to implement developed by Mr. Bill Zeedyk. The headcut was addressed and a series of one-rock dams were placed in the stream each year to capture sediment, raise the streambed, and induce meandering. This has been a very successful project.

The Carson National Forest is planning to utilize similar methodologies on McCrystal Creek this year to stabilize the creek and re-create sinuosity in the system utilizing Mr. Zeedyk's expertise. In addition, other rehabilitation efforts will be implemented on other sections of the river reach that include bank grading and riparian planting.

Lastly, the Carson National Forest has used prescribed burning and timber stand improvements, namely thinning, in the Ponil watershed to reduce fuels and improve watershed conditions and wildlife habitat. These efforts will continue within program priorities and funding levels.

Coordination

In this watershed public awareness and involvement will be crucial to the successful implementation of this plan and improved water quality. Staff from the SWQB will work with stakeholders to provide the guidance in developing the Watershed Restoration Action Strategy (WRAS). The WRAS is a written plan intended to provide a long-range vision for various activities and management of resources in a watershed. It includes opportunities for private landowners and public agencies to reduce and prevent impacts to water quality. This long-range strategy will become instrumental in coordinating and achieving a reduction of turbidity and will be used to prevent water quality impacts in the watershed. SWQB staff will assist with any technical assistance such as selection and application of BMPs needed to meet WRAS goals.

The SWQB will work with stakeholders in this watershed to encourage the implementation of BMPs such as pinyon and juniper thinning in areas that have had excessive encroachment of these trees and which are an obvious source of surface runoff and gully formation. The SWQB will also work with the Philmont Boy Scout Ranch to determine if BMPs are needed to address potential impacts from concentrated use by the boy scouts. In addition, the SWQB will provide outreach and education to the Philmont Boy Scout Ranch regarding nonpoint source pollution issues and will encourage involvement by the Ranch and boy scouts in volunteer efforts to address water quality issues. The SWQB will encourage other landowners to implement, if applicable, new grazing management to address riparian and watershed issues. Since the induced meandering methodologies developed by Mr. Zeedyk have proven to be successful, landowners in the watershed will be encouraged to view the results of such efforts and use them in similar situations on their lands. Certain reaches in the Ponil watershed may be suitable for the re-introduction of beaver. Beaver have been proven as a very effective and affordable BMP to repair degraded streams systems. Their activities can bring about a rapid regrowth of riparian vegetation, change an ephemeral stream into a perennial stream, capture sediment, raise the water table, and reduce flood velocities. Lastly, the SWQB will encourage all landowners in the watershed to address road issues such as dirt roads that have been constructed without proper drainage controls to prevent sediment from reaching watercourses.

Stakeholders in this process will include SWQB, and other members of the Watershed Restoration Action Strategy such as Vermejo Park, the Philmont Boy Scout Ranch, the Carson National Forest, the Town of Cimarron, the New Mexico State Highway Department, and other private landowners.

Implementation of BMPs within the watershed to reduce pollutant loading from nonpoint sources will be on a voluntary basis. Reductions from point sources will be addressed in revisions to discharge permits.

Stakeholder public outreach and involvement in the implementation of this TMDL will be ongoing.

Time Line

The following is an anticipated timeline for TMDL implementation in this watershed.

Implementation Actions	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Public Outreach and Involvement	X	X	X	X	X
Establish Milestones	X				
Secure Funding	X		X		
Implement Management Measures (BMPs)		X	X		
Monitor BMPs		X	X	X	
Determine BMP Effectiveness				X	X
Re-evaluate Milestones				X	X

§319(h) Funding Option

The Watershed Protection Section of the SWQB provides USEPA §319(h) funding to assist in implementation of BMPs to address water quality problems on reaches listed on the §303(d) list or which are located within Category I Watersheds as identified under the Unified Watershed Assessment of the Clean Water Action Plan. These monies are available to all private, for profit and nonprofit organizations that are authenticated legal entities, or governmental jurisdictions including: cities, counties, tribal entities, Federal agencies, or agencies of the State. Proposals are submitted by applicants through a Request for Proposal (RFP) process and require a non-federal match of 40% of the total project cost consisting of funds and/or in-kind services. Further information on funding from the Clean Water Act §319 (h) can be found at the New Mexico Environment Department website:

http://www.nmenv.state.nm.us/swqb/swqb.html.

Assurances

New Mexico's Water Quality Act does not contain enforceable prohibitions directly applicable to nonpoint sources of pollution. The Act does authorize the Water Quality Control Commission to "promulgate and publish regulations to prevent or abate water pollution in the state" and to require permits. The Water Quality Act also states in §74-6-12(a):

> ***The Water Quality Act (this article) does not grant to the commission or to any other entity the power to take away or modify the property rights in water, nor is it the intention of the Water Quality Act to take away or modify such rights.***

In addition, the State of New Mexico Surface Water Quality Standards (see Section 1100E and Section 1105C) (NMWQCC 1995b) states*:*

> ***These water quality standards do not grant the Commission or any other entity the power to create, take away or modify property rights in water.***

New Mexico policies are in accordance with the federal Clean Water Act §101(g):

> ***It is the policy of Congress that the authority of each State to allocate quantities of water within its jurisdiction shall not be superseded, abrogated or otherwise impaired by this Act. It is the further policy of Congress that nothing in this Act shall be construed to supersede or abrogate rights to quantities of water, which have been established by any State. Federal agencies shall co-operate with State and local agencies to develop comprehensive solutions to prevent, reduce and eliminate pollution in concert with programs for managing water resources.***

Nonpoint source water quality improvement work utilizes the voluntary approach. This provides technical support and grant money for the implementation of best management practices and other NPS prevention mechanisms through §319 of the Clean Water Act. Since this TMDL will be implemented through NPS control mechanisms the New Mexico Nonpoint Source Program is targeting efforts to this and other watersheds with TMDLs. The Nonpoint Source Program coordinates with the Nonpoint Source Taskforce. The Nonpoint Source Taskforce is the New Mexico statewide focus group representing federal and state agencies, local governments, tribes and pueblos, soil and water conservation districts, environmental organizations, industry, and the public. This group meets on a quarterly basis to provide input on the Section 319 program process, to disseminate information to other stakeholders and the public regarding nonpoint source issues, to identify complementary programs and sources of funding, and to help review and rank Section 319 proposals.

In order to ensure reasonable assurances for implementation in watersheds with multiple landowners, including Federal, State and private, NMED has established MOUs with several Federal agencies, in particular the Forest Service and the Bureau of Land Management. MOUs have also been developed with other State agencies, such as the New Mexico Highway Department. These MOUs provide for coordination and consistency in dealing with nonpoint source issues.

New Mexico's Clean Water Action Plan has been developed in a coordinated manner with the State's 303(d) process. All Category I watersheds identified in New Mexico's Unified Watershed Assessment process are totally coincident with the impaired waters list for 1996 and 1998 approved by EPA. The State has given a high priority for funding assessment and restoration activities to these watersheds.

The time required to attain standards for all reaches is estimated to be approximately 10-20 years. This estimate is based on a five-year time frame implementing several watershed projects that may not be starting immediately or may be in response to earlier projects. The cooperation of the Carson National Forest, the Vermejo Ranch, the Philmont Boy Scout Ranch, the Town of Cimarron, the New Mexico State Highway and Transportation Department, and other landowners will be pivotal in the implementation of this TMDL.

<u>Milestones</u>

Milestones will be used to determine if control actions are being implemented and standards attained. For this TMDL, several milestones will be established which will vary and will be determined by the BMPs implemented. Examples of milestones for metals include:

- increases in wetland areas to filter associated reductions in metals concentrations found in the stream.
- increases in stabilized streambanks and enhanced riparian areas to decrease erosion and potential loading of sediment associated with metals into a stream.
- monitoring within a time frame and continued public outreach effort to educate watershed stakeholders on measures to prevent further water quality exceedances.

Milestones will be coordinated by SWQB staff and will be re-evaluated periodically, depending on which BMPs were implemented. As additional information becomes available during the implementation of the TMDL, the targets, load capacity, and allocations may need to be changed. In the event that new data or information show that changes are warranted, TMDL revisions will be made with assistance of *[watershed]* stakeholders. The re-examination process will involve: monitoring pollutant loading, tracking implementation and effectiveness of controls, assessing water quality trends in the waterbody, and re-evaluating the TMDL for attainment of water quality standards. Although specific targets and allocations are identified in the TMDL, the ultimate success of the TMDL is not whether these targets and allocations are met, but whether beneficial uses and water quality standards are achieved.

Public Participation

Public participation was solicited in development of these TMDLs. See Appendix D for flow chart of the public participation process. The draft TMDLs were made available for a 30-day comment period starting **April 10, 2001**. Response to comments is attached as Appendix E of this document. The draft document notice of availability was extensively advertised via newsletters, email distribution lists, webpage postings (http://www.nmenv.state.nm.us/swqb/swqb.html) and press releases to area newspapers.

References Cited

Forest Guardians and Southwest Environmental Center v. Carol Browner, Administrator, US EPA, Civil Action 96-0826 LH/LFG, 1997.

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SWQB/NMED. 1999b. Quality Assurance Project Plan.

SWQB/NMED. 1998. State of New Mexico Procedures for Assessing Standards Attainment for 303(d) List and 305(b) Report Assessment Protocol

USEPA. 1993. Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters. EPA-840-B-92-002. Washington, D.C.

USGS. 1994. Water Resources Data New Mexico Water Year 1993. Data Report NM-93-1. Albuquerque, NM.

USGS. 1986. Study and Interpretation of the Chemical Characteristics of Natural Water. Paper 2252. Alexandria, VA.

Appendices

8.34 Conversion Factor Derivation

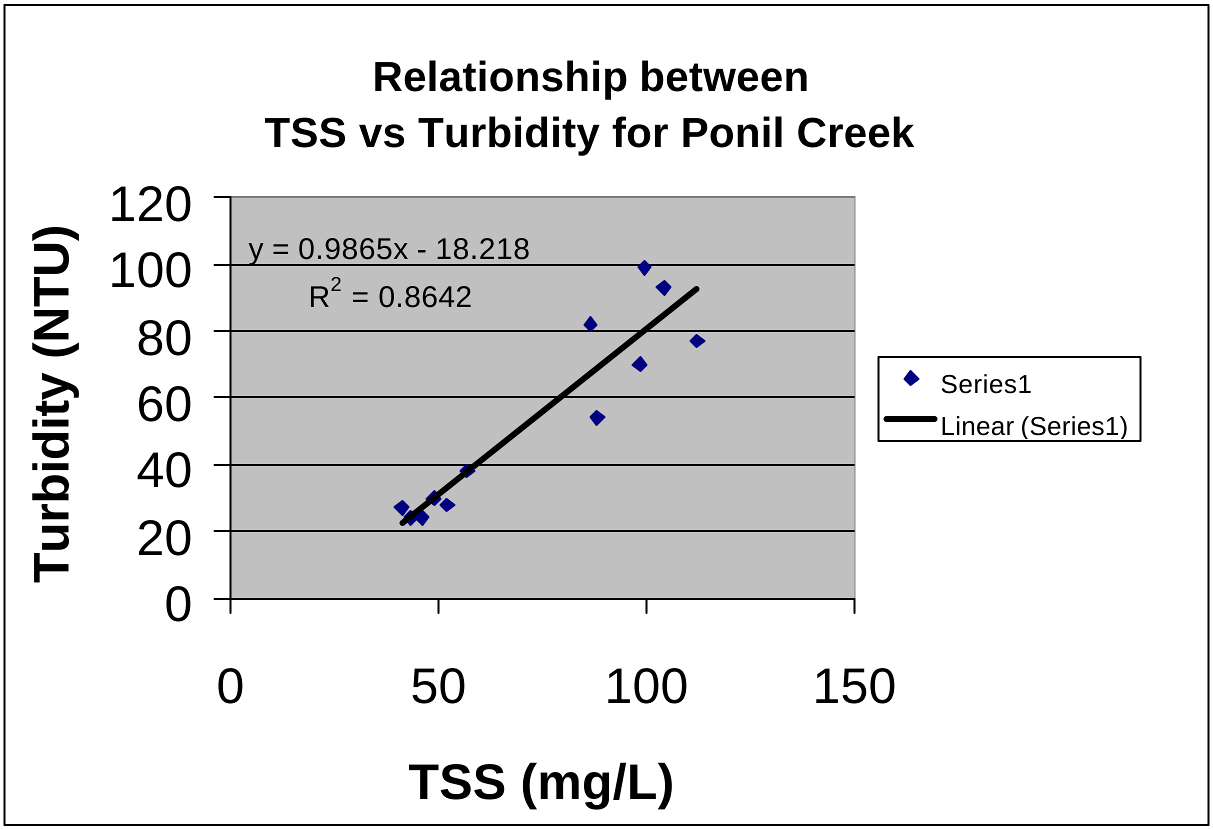
Million gallons/day **x** Milligrams/liter **x** 8.34 = pounds/day

10^6~~gallons~~/day **x** 3.7854 liters/~~1 gallon~~ **x** 10^{-3}gram/liter **x** 1 pound/454 ~~grams~~ = pounds/day

10^6 (10^{-3}) (3.7854)/454 = 3785.4/454

= 8.3379
= **8.34**

Appendix B: Relationship Between Total Suspended Sediment and Turbidity for Ponil Creek



POLLUTANT SOURCE(S) DOCUMENTATION PROTOCOL

This protocol was designed to support federal regulations and guidance requiring states to document and include probable source(s) of pollutant(s) in their §303(d) lists as well as the States §305(b) Report to Congress.

The following procedure should be used when sampling crews are in the field conducting water quality surveys or at any other time field staff are collecting data.

Pollutant Source Documentation Steps:

1). Obtain a copy of the most current §303(d) list.

2). Obtain copies of the ***Field Sheet for Assessing Designated Uses and Nonpoint Sources of Pollution***.

3). Obtain 35mm camera that has time/date photo stamp on it. **DO NOT USE A DIGITAL CAMERA FOR THIS PHOTODOCUMENTATION**

4). Identify the reach(s) and probable source(s) of pollutant in the §303(d) list associated with the project that you will be working on.

5). Verify if current source(s) listed in the §303(d) list are accurate.

6). Check the appropriate box(s) on the field sheet for source(s) of nonsupport and estimate percent contribution of each source.

7). Photodocument probable source(s) of pollutant.

8). Create a folder for the TMDL files, insert field sheet and photodocumentation into the file.

This information will be used to update §303(d) lists and the States §305(b) Report to Congress.

FIELD SHEET FOR ASSESSING DESIGNATED USES AND NONPOINT SOURCES OF POLLUTION

CODES FOR USES NOT FULLY SUPPORTED

- ☐ HQCWF = HIGH QUALITY COLDWATER FISHERY
- ☐ CWF = COLDWATER FISHERY
- ☐ MCWF = MARGINAL COLDWATER FISHERY
- ☐ WWF = WARMWATER FISHERY
- ☐ LWWF = LIMITED WARMWATER FISHERY

- ☐ DWS = DOMESTIC WATER SUPPLY
- ☐ PC = PRIMARY CONTACT
- ☐ IRR = IRRIGATION
- ☐ LW = LIVESTOCK WATERING
- ☐ WH = WILDLIFE HABITAT

Fish culture, secondary contact and municipal and industrial water supply and storage are also designated in particular stream reaches where these uses are actually being realized. However, no numeric standards apply uniquely to these uses.

REACH NAME:

SEGMENT NUMBER:
BASIN:
PARAMETER:

STAFF MAKING ASSESSMENT:
DATE:

CODES FOR SOURCES OF NONSUPPORT (CHECK ALL THAT APPLY)

- ☐ 0100 INDUSTRIAL POINT SOURCES

- ☐ 0200 MUNICIPAL POINT SOURCES
- ☐ 0201 DOMESTIC POINT SOURCES

- ☐ 0400 COMBINED SEWER OVERFLOWS

- ☐ 1000 AGRICULTURE
- ☐ 1100 NONIRRIGATED CROP PRODUCTION
- ☐ 1200 IRRIGATED CROP PRODUCTION
- ☐ 1201 IRRIGATED RETURN FLOWS
- ☐ 1300 SPECIALTY CROP PRODUCTION (e.g., truck farming and orchards)
- ☐ 1400 PASTURELAND
- ☐ 1500 RANGELAND
- ☐ 1600 FEEDLOTS - ALL TYPES
- ☐ 1700 AQUACULTURE
- ☐ 1800 ANIMAL HOLDING/MANAGEMENT AREAS
- ☐ 1900 MANURE LAGOONS

- ☐ 2000 SILVICULTURE
- ☐ 2100 HARVESTING, RESTORATION, RESIDUE MANAGEMENT
- ☐ 2200 FOREST MANAGEMENT
- ☐ 2300 ROAD CONSTRUCTION or MAINTENANCE

- ☐ 3000 CONSTRUCTION
- ☐ 3100 HIGHWAY/ROAD/BRIDGE
- ☐ 3200 LAND DEVELOPMENT
- ☐ 3201 RESORT DEVELOPMENT
- ☐ 3300 HYDROELECTRIC

- ☐ 4000 URBAN RUNOFF/STORM SEWERS

- ☐ 5000 RESOURCES EXTRACTION
- ☐ 5100 SURFACE MINING
- ☐ 5200 SUBSURFACE MINING
- ☐ 5300 PLACER MINING
- ☐ 5400 DREDGE MINING
- ☐ 5500 PETROLEUM ACTIVITIES
- ☐ 5501 PIPELINES
- ☐ 5600 MILL TAILINGS
- ☐ 5700 MINE TAILINGS
- ☐ 5800 ROAD CONSTRUCTION/MAINTENANCE 8400
- ☐ 5900 SPILLS

- ☐ 6000 LAND DISPOSAL
- ☐ 6100 SLUDGE
- ☐ 6200 WASTEWATER
- ☐ 6300 LANDFILLS
- ☐ 6400 INDUSTRIAL LAND TREATMENT
- ☐ 6500 ONSITE WASTEWATER SYSTEMS (septic tanks, etc.)
- ☐ 6600 HAZARDOUS WASTE
- ☐ 6700 SEPTAGE DISPOSAL
- ☐ 6800 UST LEAKS

- ☐ 7000 HYDROMODIFICATION
- ☐ 7100 CHANNELIZATION
- ☐ 7200 DREDGING
- ☐ 7300 DAM CONSTRUCTION/REPAIR

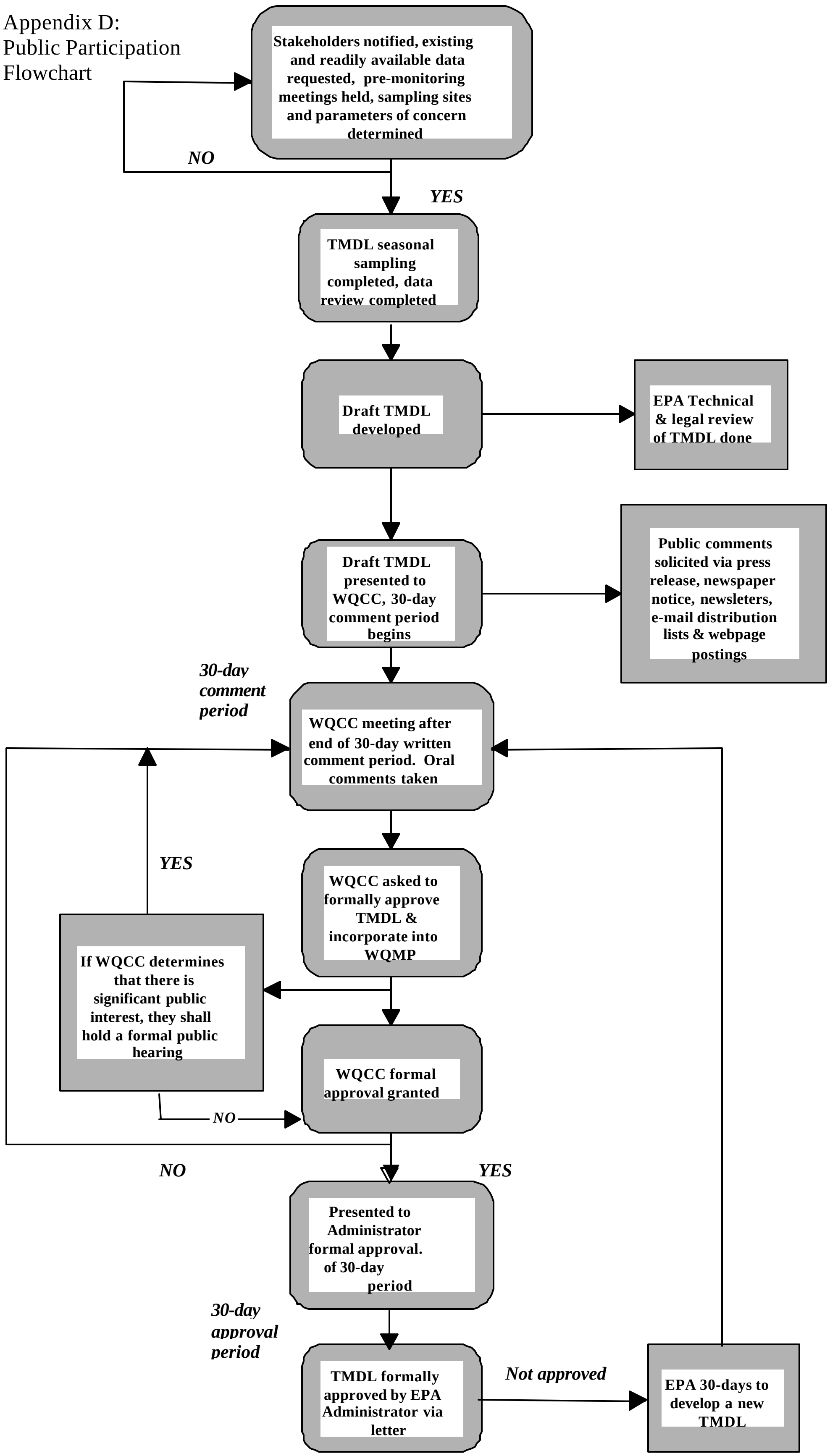
- ☐ 7400 FLOW REGULATION/MODIFICATION
- ☐ 7500 BRIDGE CONSTRUCTION
- ☐ 7600 REMOVAL OF RIPARIAN VEGETATION
- ☐ 7700 STREAMBANK MODIFICATION OR DESTABILIZATION
- ☐ 7800 DRAINING/FILLING OF WETLANDS

- ☐ 8000 OTHER
- ☐ 8010 VECTOR CONTROL ACTIVITIES
- ☐ 8100 ATMOSPHERIC DEPOSITION
- ☐ 8200 WASTE STORAGE/STORAGE TANK LEAKS
- ☐ 8300 ROAD MAINTENANCE or RUNOFF
- ☐ 8400 SPILLS
- ☐ 8500 IN-PLACE CONTAMINANTS
- ☐ 8600 NATURAL
- ☐ 8700 RECREATIONAL ACTIVITIES
- ☐ 8701 ROAD/PARKING LOT RUNOFF
- ☐ 8702 OFF-ROAD VEHICLES
- ☐ 8703 REFUSE DISPOSAL
- ☐ 8704 WILDLIFE IMPACTS
- ☐ 8705 SKI SLOPE RUNOFF
- ☐ 8800 UPSTREAM IMPOUNDMENT
- ☐ 8900 SALT STORAGE SITES

- ☐ 9000 SOURCE UNKNOWN

Appendix C: Cont.

Appendix D:
Public Participation
Flowchart



Cimarron Watershed Public Meeting Attendees
(Discussion of Draft TMDLs)
2 May 2001

Name	Affiliation	Mailing Address	Phone/Fax Nos.	E-mail Address
Julia Davis Stafford	CS Ranch	RR 1 Box 62 Cimarron, NM	505) 376-2827 505) 376-2595	
Charles M. Walker	NRCS	245 Park Ave Raton, NM 87740	505-445-9571	
Scott Berry	K.S. Berry Engineering	808 South 2nd St. Raton, NM 87740	505-445-6132	
Thomas Hatcher	Avid	RT 1 BOX 44 SPRINGER NM 87747	447-9663	
Bob Ricklefs	Philmont	RT 1 Box 35 CIMARRON 87714	376 2281 376 2602	
Gretchen Sammis	Chase Ranch	PO Box 227	505 376 2348 505 376 2105	
George T. Parker PARKER		PO Box 360	505 376 2584	PARKERSV @ CIMARRON.SPRINGER COOP.COM

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ATTN: STEPHANIE STRINGER
P.O. BOX 26110
SANTA FE, NM 87502

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207 LINES 2 time(s) at $ 163.83
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TAX: 10.57
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AFFIDAVIT OF PUBLICATION

STATE OF NEW MEXICO
COUNTY OF SANTA FE
I, M M Weideman being first duly sworn declare and say that I am Legal Advertising Representative of THE SANTA FE NEW MEXICAN, a daily newspaper published in the English language, and having a general circulation in the Counties of Santa Fe and Los Alamos, State of New Mexico and being a Newspaper duly qualified to publish legal notices and advertisements under the provisions of Chapter 167 on Session Laws of 1937; that the publication #69110 a copy of which is hereto attached was published in said newspaper 2 day(s) between 04/06/2001 and 04/09/2001 and that the notice was published in the newspaper proper and not in any supplement; the first publication being on the 6 day of April, 2001 and that the undersigned has personal knowledge of the matter and things set forth in this affidavit.

/S/ M M Weideman
LEGAL ADVERTISEMENT REPRESENTATIVE

Subscribed and sworn to before me on this 9 day of April A.D., 2001

Notary Laura L. Harding

Commission Expires 11/23/03

NOTICE OF A 30-DAY PUBLIC COMMENT PERIOD AND COMMUNITY MEETING FOR DRAFT TOTAL MAXIMUM DAILY LOADS (TMDLs)

THE NEW MEXICO ENVIRONMENT DEPARTMENT, SURFACE WATER QUALITY BUREAU ON THE PROPOSED TOTAL MAXIMUM DAILY LOADS (TMDLs) FOR PONIL AND MIDDLE PONIL CREEKS

The New Mexico Environment Department (NMED), Surface Water Quality Bureau (SWQB) is inviting the public to comment on draft "total maximum daily loads" (TMDLs) for Ponil and Middle Ponil Creeks. Both creeks are located in Colfax County near the Town of Cimarron. The SWQB will hold a community meeting on Wednesday, May 2nd, from 6:30 p.m. to 8:30 p.m. at the Cimarron Village Hall, 356-B East 9th St. to allow public input on the draft TMDLs for the above- mentioned creeks.

A TMDL is a specific water quality goal and a means for recommending controls needed to meet water quality standards in a particular water or watershed. Establishing a TMDL is an important step in watershed protection because it sets quantified goals for water quality conditions that may then determine what actions are needed to restore or protect the health of the waterbody. Ponil Creek (from the mouth on the Cimarron River to the confluence of North Ponil and South Ponil Creeks, 15.8 miles) has a sub-watershed size of 333 square miles and flows east of the town of Cimarron. Middle Ponil Creek (from the confluence with South Ponil Creek to the headwaters, 20.9 miles) flows through the Philmont Boy Scout Ranch with a sub-watershed size of 72 square miles.

Pollutants of concern for **Ponil Creek** are those which exceeded the state surface water quality standards. These include metals (specifically, chronic aluminum), temperature and turbidity. **Middle Ponil Creek** exceeded the state surface water quality standard for temperature and turbidity.

The New Mexico Water Quality Control Commission (NMWQCC) will hold a regular public meeting at 9:00 a.m. on Tuesday, April 10, 2001 at the State Land Office, Morgan Hall, 310 Old Santa Fe Trail, Santa Fe, New Mexico. This meeting will be the start of the 30-day public comment period for the Ponil and Middle Ponil Creek TMDLs. The 30-day public comment period for the Ponil and Middle Ponil Creek TMDLs ends May 9, 2001 at 5:00 p.m. mountain daylight time. **Final Ponil and Middle Ponil Creek TMDLs will be submitted to the New Mexico Water Quality Control Commission (NMWQCC) for their formal approval at the scheduled public meeting tentatively set for June 12, 2001 at which time public comments will also be accepted.**

For more information, contact **David Hogge, in the NMED SWQB, at P.O. Box 26110, Santa Fe, New Mexico, 87502 or by calling (505) 827-2981.** The draft TMDLs will also be posted in the TMDL Development Section of the Surface Water Quality Bureau's website (by April 10, 2001), which can be found at: www.nmenv.state.nm.us/swqb/swqb.html
Legal #69110
Pub. Apr. 6 & 9, 2001

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STATE OF NEW MEXICO
County of Santa Fe SS

Bill Tafoya, being duly sworn, declares and says that he is Classified Advertising Manager of **The Journal North**, and that this newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Session Laws of 1937, and that payment therefore has been made of assessed as court cost; that the notice, copy of which is hereto attached, was published in said paper in the regular daily edition, for 2 times, the first publication being on the 7 day of Apr., 2001, and the subsequent consecutive publications on Apr. 9, 2001.

Sworn and subscribed to before me, a Notary Public, in and for the County of Bernalillo and State of New Mexico this 9 day of April, 2001.

PRICE 80.08

Statement to come at end of month.

ACCOUNT NUMBER C83171

CLA-22-A (R-4-97)

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STATE O
My Commission Expires:

NOTICE OF 30-DAY PUBLIC COMMENT PERIOD AND COMMUNITY MEETING FOR DRAFT TOTAL MAXIMUM DAILY LOADS (TMDLs)

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Journal North: April 7, 9, 2001

Appendix E: Response to Comments

No comments were received.